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Williamsport Technical Institute

Bulletin

1950 Catalog Issue

Williamsport, Pennsylvania

The Williamsport Technical Institute

Founded 1920

Announcement of Courses

in

VOCATIONAL AND TECHNICAL EDUCATION

A Division of the School

District of the City of Williamsport

JANUARY 1950

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FOREWORD

Williamsport is not just another American city. It is an unusual city from many angles. In every phase of activity we put into practice the good qualities of our American Way of Life.

Perhaps one of the outstanding characteristics is the fact that our business, industrial, and professional leaders are interested not only in being successful in their own private enterprises but also in building a better community.

Therefore, we see in this city a great interest in public education.

Out of this interest has developed the Williamsport Technical Institute, a division of the Williamsport Public Schools. This school endeavors to give vocational and technical education to both high school youth and adults. A wide selection of courses has been developed for its students. It is hoped that the Williamsport Public Schools through the program of the Institute can offer new educational opportunities and render a real service to the student and to his community.

Paul E. Witmeyer,

Superintendent of Schools.

A WORD TO THE STUDENT

The Williamsport Technical Institute specializes in the comprehensive education of men and women who wish to prepare for the industry and business of tomorrow. In our school you will learn trade skills, and in addition you will acquire the technical information which will make you a technician.

The Institute is a working school. We learn to do by doing. If you become a student here, you will do most of your work in a shop or laboratory. The theoretical portion of your course will be taught by your own shop teachers. Since ours is a working school, most instruction is on "live" projects, and you will learn by doing the things you will do later as a technician. You will also learn much that will fit you for planning and leadership positions later in your career.

I think you will enjoy our school and our friendly community, and I can assure you that it is the intention of the people of Williamsport that your education here shall give you a good foundation for your future career.

George H. Parkes,

Director.

THE WILLIAMSPORT TECHNICAL INSTITUTE

The Technical Institute is a public school dedicated to the idea that education should fit itself to the needs of the individual and the community. Its chief purpose is to train young men and women to enter commerce, industry, agriculture or business adequately equipped for their occupation, and to give further training to employed workers in order that they may advance to positions of greater responsibility and superior opportunity.

The Institute operates as a division of the School District of the City of Williamsport. About 400 of its present total enrollment of 1,450 are boys of high-school age. Approximately 50 students are handicapped young civilians who have been sent to the Institute by the Pennsylvania Bureau of Rehabilitation. The remainder of the student body is composed of approximately 1,000 adult students many of whom are veterans.

The Institute's buildings and grounds in the City of Williamsport cover more than thirty acres. In addition there are classrooms and a large hangar at the local airport and a seven-hundred acre farm which is used in training agricultural students.

Administration and classroom building

GENERAL INFORMATION

The School Year

All courses operate on a twelve months basis. This year-round operation offers the student a number of advantages. Two of these are worth mentioning here. It permits the adult student to make efficient use of his time and to make the greatest possible progress toward his ultimate objective in the shortest possible time. It also helps the student form the habit of continuous application, a habit of great value in the industrial and business world.

The school is in session six hours a day. Classes operate from 8:45 a. m. to 3:21 p. m. daily except Saturday and Sunday.

Vacations

Regular school vacations are scheduled for legal holidays such as Easter, July Fourth, and Labor Day, in addition to two weeks during the summer.

Regularity of Attendance

The student should plan to continue his course throughout the year without interruption except for regularly scheduled vacations. Veteran students are allowed medical leaves of absence where properly certified; otherwise, the attendance regulations are rather rigid.

Entrance Requirements

The school is open to young men and women over 16 years of age who can meet the requirements. Since each applicant is dealt with as an individual there may be conditions under which he might not be admitted. The Institute reserves the right to admit and to drop from classes students who cannot or do not make satisfactory progress in the course.

Technical Institute students have always been recognized as an excellent group of young men and women. Only those students willing to apply themselves, and willing to conduct themselves in a gentlemanly, business-like, and honest manner are permitted to remain in training.

Registration

When the application is received, a tentative reservation will be made for the applicant and he will be informed as to when he might expect to be admitted.

Rooms are comfortable and convenient

If the applicant is a veteran, he should secure the necessary letter of eligibility from his Veterans Administration office and photostats of his discharge, marriage, and birth certificates for his children.

Instructors

Only skilled craftsmen and technicians who have had long years of practical experience are employed as instructors. All of these men are also employed for their ability to teach subjects from both the practical and technical viewpoints.

Equipment

The Technical Institute is well equipped with modern tools, machines, and laboratory equipment. Thus students are able to leave the school on graduation and enter employment without learning anew how things are done in industry. Shop practices duplicate those found in industry as much as is possible under training conditions.

Living Accommodations

The school district maintains a cafeteria in the nearby high school in which lunch may be secured at very reasonable prices. Breakfast and dinner may be secured at boarding houses. The school does not maintain dormitories, but assists students in locating comfortable and convenient accommodations.

Diplomas

A diploma is granted to students who successfully complete the course and meet the standards prescribed by the faculty. Under certain circumstances equivalent instruction in other schools or experience in industry and business may be accepted in lieu of a portion of the course.

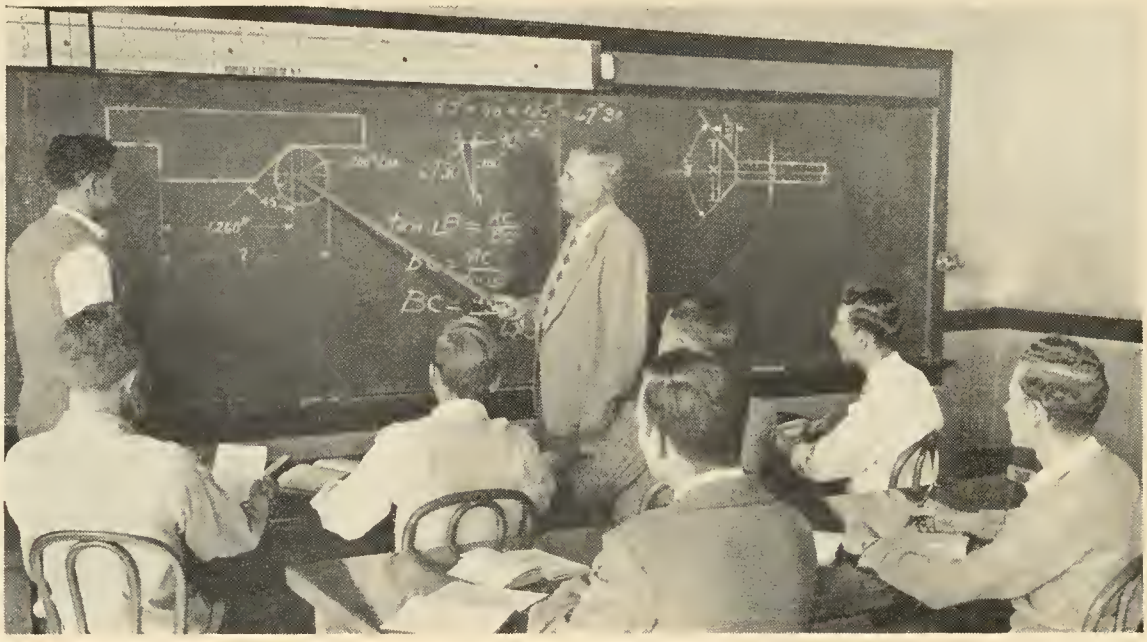
Graduates Get Jobs

Placement of technically trained students is, of course, the ultimate aim of the school. Students at the Technical Institute are trained for jobs. Responses from a survey covering 400 students who had spent a year or more in the school showed that almost ninety per cent of Technical Institute graduates were working in occupations for which they had been trained.

Recreational Activities

The Technical Institute presents a number of cultural and recreational opportunities to students. A modern, fully equipped gymnasium and practice playing fields make possible a varied sports program. Dances are held at regular intervals during the cooler months, and swimming parties and picnics are arranged during the summer.

Intramural sports are emphasized



A class in technical mathematics

Composition of the Student Body

At present the Williamsport Technical Institute offers opportunities for vocational and technical education to the following groups of students:

Veterans

At the present time, veterans make up a large portion of the student body.

Physically Handicapped Students

Physically handicapped students have been a major concern of the Technical Institute since 1918, when disabled veterans of World War I were trained to take their places in industry and compete on an equal footing with their fellow workers. Since that time the Technical Institute has become an outstanding school in Pennsylvania for training the physically handicapped.

High School Students

The Williamsport Senior High School and surrounding towns send a large number of students to the Technical Institute for occupational and technical education.

High School Graduates and Adults

An increasing number of young men who wish to prepare for technical careers are asking admission to the Technical Institute courses after graduation from high school. Those who have not graduated from high school, may be admitted either by examination or by having their records evaluated by the school.

THE COURSES OF INSTRUCTION

Thirty-five full time courses are offered by the Williamsport Technical Institute.

On the following pages each course is outlined in detail. However, you will find it helpful to read the preliminary explanation given on this page so that you can better evaluate what each course comprehends.

The Practical and the Theoretical

Practical and theoretical training supplement each other in all courses. Practical training, we believe deserves a prominent place in a technical program because the resultant skills are fundamental to the success of the graduate. They give him his initial employment opportunity and in very many cases provide the continued source of his employment.

However, merely manual skill is not enough to assure continued employment and advancement. In addition, the student must develop an understanding as to why things are done, and must have a good background of theoretical and related knowledge.

Hence, related theory and technical study requires about one-third of the student's time. He learns not only how to do things, but why they are done in a specific way. He becomes acquainted with the fundamental technical principles of the mechanical and physical sciences. Finally, he develops the ability to apply these principles in the solution of practical problems in his chosen field.

Some of the laboratory and shop buildings

Instructions on the proper use of the plow

AGRICULTURE

GENERAL AGRICULTURE

The chief objective of the General Agriculture Course is to train young men for proficiency in farming and farm management. With special emphasis on practical experience, this course employs extensive training facilities in all types of farming common to Central Pennsylvania.

The training program of three years duration, centers around the operation of a seven hundred acre farm known as the Henry G. Brock Vocational Farm. Trainees operate enterprises in dairy management, swine and poultry husbandry, field crops, gardening and soil conservation.

In this course the extensive facilities of the Technical Institute are used in farm shop instruction. This phase of the course includes woodwork, forging, welding, electricity, soldering, tractor and machinery repair and general mechanics.

The student who applies himself to his work should be well qualified to operate a farm or seek employment as a farm manager. There is a constant demand for skilled farm workers and this course aims to develop those skills demanded of a progressive farm operator.

Course Units: Vegetable growing; poultry, dairy, and animal husbandry; farm shop and machinery; field crops; farm management. 3 years.

SERVICE AND REPAIR OF AGRICULTURAL EQUIPMENT

The veteran who wishes to engage in mechanized farming or to repair and service agricultural equipment will find that this course is what he needs. The program includes basic and advanced instruction in all of the trades and types of skills required to operate and repair modern agricultural equipment.

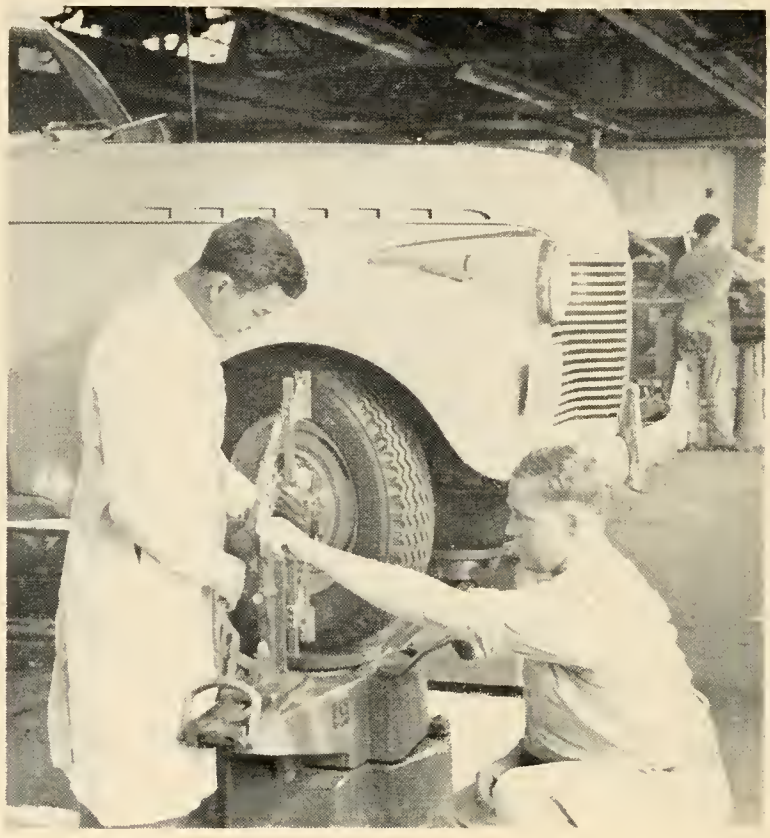
The excellent shop facilities of the Technical Institute are used in teaching the repair and maintenance of all types of mechanized and electrical farm equipment. Since these shops are all well equipped and each instructor is an expert in his field, the student receives a thorough training in the mechanical skills required on the farm.

Instruction is given in all the practical phases of electricity, the maintenance of automotive and tractor equipment, working with sheet metal and blacksmithing, the proper installation and maintenance of plumbing and water supply systems, electric and acetylene welding and fabrication.

Course Units: Rural electricity, automotive mechanics, farm tractor repair, welding, sheet metal and blacksmithing, machine shop practice, plumbing and water supply, farm machinery. 4 years.

The student learns to make his own repairs

AUTOMOTIVE AND DIESEL



Students use modern equipment

AUTOMOTIVE SERVICE

This course gives a thorough preparation for entering the automotive garage and service field. It includes a study of all types of internal combustion engines and automobile equipment.

The student is given a thorough preparation in every aspect of automotive maintenance and repair including the more specialized fields such as wheel alignment and balancing, carburetion, ignition, test and tune up procedures.

Improvements in modern automobiles and equipment require that automotive mechanics have a thorough all round technical training which can be secured best in a well equipped school. Both theoretical training and practical experience is given on all phases of automotive maintenance.

Course Units: Machine and bench work, engine service and repair, cooling system, transmission and clutch, steering, front and rear axles, brakes, chassis work and lubrication, electrical systems, fuel systems, test and tune up, trouble shooting, welding. 3 years.

DIESEL SERVICE

The Diesel Service course is a practical course in the repair and operation of diesel and diesel-electric equipment. The Diesel Department of the Tech-

nical Institute is one of the best equipped diesel schools in the Eastern United States. Instruction is available on marine, stationary, and portable equipment. Students in this course are prepared for entrance into field jobs as diesel engine mechanics or operators.

Course Units: Machine and bench work; principles of internal combustion engines, repair of internal combustion engines, repair and maintenance of diesel engines, fuels and ignition systems, diesel starting systems, lubrication, transmission, clutch and power applications, injection pumps and injectors, auxiliary equipment, electrical theory, welding, engine testing and power measurement. 2 years.

Diesel engine trouble shooting

SERVICE AND OPERATION OF CONSTRUCTION EQUIPMENT

This course consists of the maintenance, service and operation of heavy construction equipment such as motorized blade grader, carry-all scraper, bulldozer, ditch digger, crane, shovel, etc.

Men who successfully complete the course are qualified to enter the construction field as maintenance men, or apprentice operators.

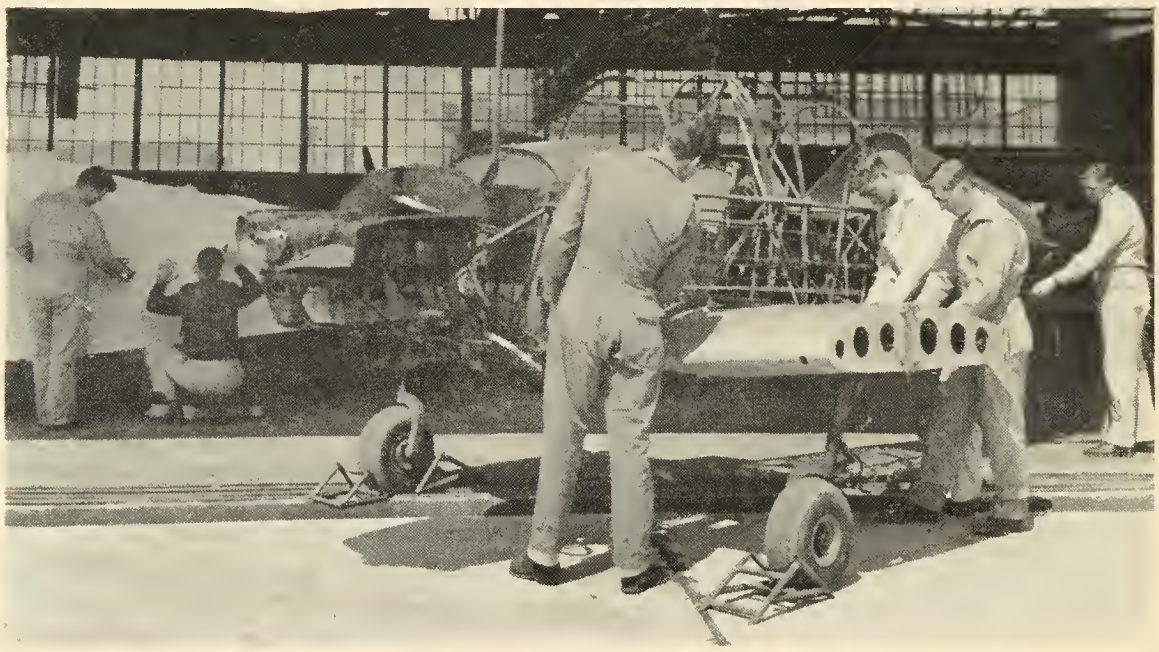
Course Units: Machine and bench work, principles of internal com- principles and maintenance, diesel engine maintenance, welding, equipment lubrication, equipment maintenance, and operation, electrical theory, related surveying, related theory. 2 years.

AVIATION

AVIATION MECHANIC, "A" LICENSE

This course prepares for the Civil Aeronautics Authority examination for "Aircraft" mechanic. Certain related and theoretical subjects are presented to broaden the training and experience of the individual beyond the minimum required for the license. Airport service work is included. Instruction is given at the school hangar located on Williamsport's modern airport.

Course Units: Aerodynamics, mechanical drafting, civil air regulations, aircraft woodwork, aircraft welding, aircraft sheet metal, electrical systems, hydraulic systems, fuel systems, rigging and assembly, fabric and dope work, airport service work. 1 year.

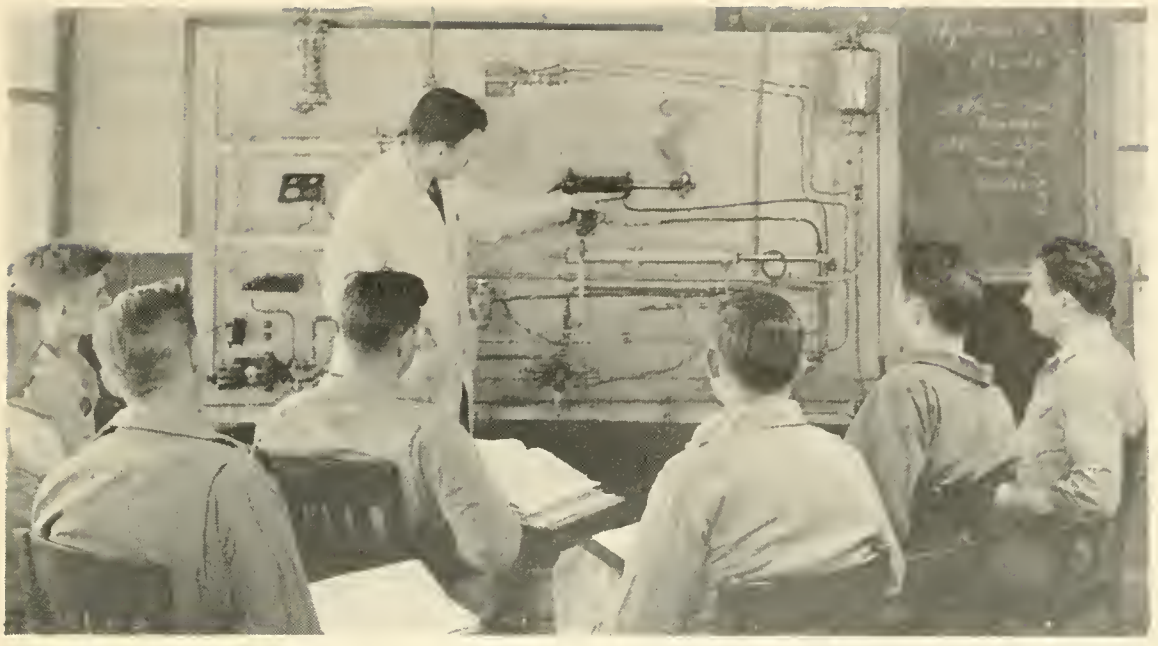


Students become skilled craftsmen

AVIATION MECHANIC, "E" LICENSE

A parallel course to Aviation Mechanic "A" License but preparing for the Civil Aeronautics Authority examination for Engine Mechanic. Certain related and theoretical subjects are presented to broaden the education and experience of the student beyond the minimum required for the license. Actual work experience is gained on "live" engines.

Course Units: Tools and processes of engine repair, mechanical drafting, engine theory, carburetors and carburetion, magnetos and electrical systems, lubrication systems, propellers, civil air regulations, elementary and advanced engine overhaul, field service work. 1 year.



Technical and scientific training is emphasized

AVIATION TECHNICIAN

The graduate of this course will receive a broad background of mechanical, technical, and scientific training in the operating phases of aviation.

He will be a skilled "A and E" mechanic with CAA licenses. He will receive sufficient flight experience to permit him to understand just how his work affects the efficiency and safety of the aircraft. He will be able to make a good modification drawing, to write an accurate and readable report. He will be able to handle business matters pertaining to the operation of small airports, and know the basic principles of aviation law as applied to small operations.

The personality and manners of the graduate will be such as will permit him to meet the public. His most valuable service will be as assistant to the manager of a fixed base operation, or as a service manager or inspector for major repair facilities. The graduate will also be prepared to fill many important positions in the aircraft manufacturing industries.

Course Units: Unit I. Aviation Mechanic, "E" License.

Unit II. Aviation Mechanic, "A" License.

Unit III. Indoctrination Flight Training, CAA Reports and Bulletins. Airport Accounts and Finances, Airport and Aviation Law, Airport Maintenance Problems, Airport Management. 2¼ years.

BUILDING CONSTRUCTION TECHNOLOGY

CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY

This is a basic program for students who wish to obtain a broad knowledge of building construction. The student receives instruction in the use of the common tools, modern materials, and methods used in present day construction industry. He acquires actual practice in building, construction, and repair work. This course prepares for entrance into the construction field in a variety of occupations. Many will enter the industry with the objective of skilled carpenter or craftsman, but the all-round instruction and technical background will help a large porportion of the students to qualify as foremen or building superintendents once they have acquired the necessary experience.

Courses Units: Basic carpentry, advanced carpentry, millwright practice, steel square, painting, concrete laboratory, brick and masonry work, plumbing, surveying, construction practice, and experience. 4 years.

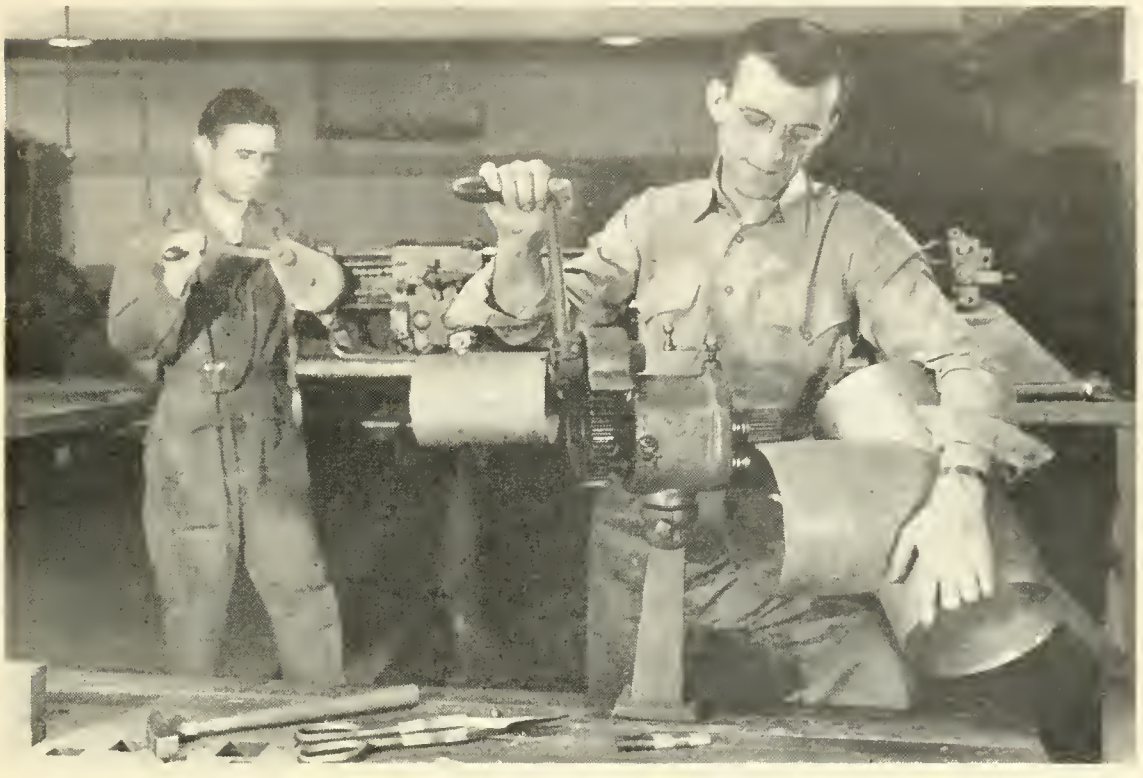
Skill is developed on real building projects

PLUMBING

The student who completes the plumbing course is thoroughly trained in all phases of plumbing. In the beginning the fundamentals such as mathematics, blue-print reading, the use of tools, pipe threading and fitting are taught. Next the layout of soil, waste, and vent pipes is taught. Hot and cold water distribution for domestic use, sewage systems and the maintenance of household and industrial plumbing is thoroughly covered. Lead

work and joint wiping is given all advanced students. Students who successfully complete the plumbing course will find that they are proficient in all phases of the trade.

Course Units: Plumbing fundamentals; layout of soil, waste, and vent pipes; hot and cold water distribution; sewage; lead work and joint wiping. 3 years.



Students learn all phases of a trade

SHEET METAL

This course may be used by the student to become a general sheet metal worker and to set up his own business or to become a sheet metal helper. Men interested in air conditioning installation, and other trades utilizing sheet metal, will find it an excellent course. All the fundamentals of the trade are taught; fundamentals of general sheet metal work, seams, hems, wiring, soldering, using the brake, squaring shears, combination machines, grooving machines, sheet metal work for the tinner, roofer and the furnace machines, sheet metal work for the tinner, roofer and the furnace man.

Course Units: Drafting, forge practice, metal forming, combination machines, soldering, power machines, benchwork, oxy-acetylene welding, related subjects. 2 years.

BUSINESS AND COMMERCIAL

SECRETARIAL TRAINING

There is a definite need for specially prepared and well trained office personnel. Competent office workers are in demand. Employers are no longer willing to waste time in training incompetent or unprepared employees. Employment and advancement to higher positions await only those who possess ability and special training. The Secretarial Training course is designed to combine the theory of secretarial and office practice with actual work experience.

Course Units: Filing, typewriting, shorthand, business mathematics, business English, business machines, and general business training. 2 years.

Practical training in salesmanship

RETAIL BUSINESS MANAGEMENT

The objective of this course is to train the student to successfully work as a junior executive in a retail or a wholesale business, or to properly conduct a business of his own. Actual store practice will be given under close supervision of the school.

Course Units: Principles of retailing, business English, merchandise mathematics, marketing, advertising, employee selection, merchandise information, salesmanship, wholesaling, job problems and store practice. 3 years.

OFFICE APPLIANCE REPAIR

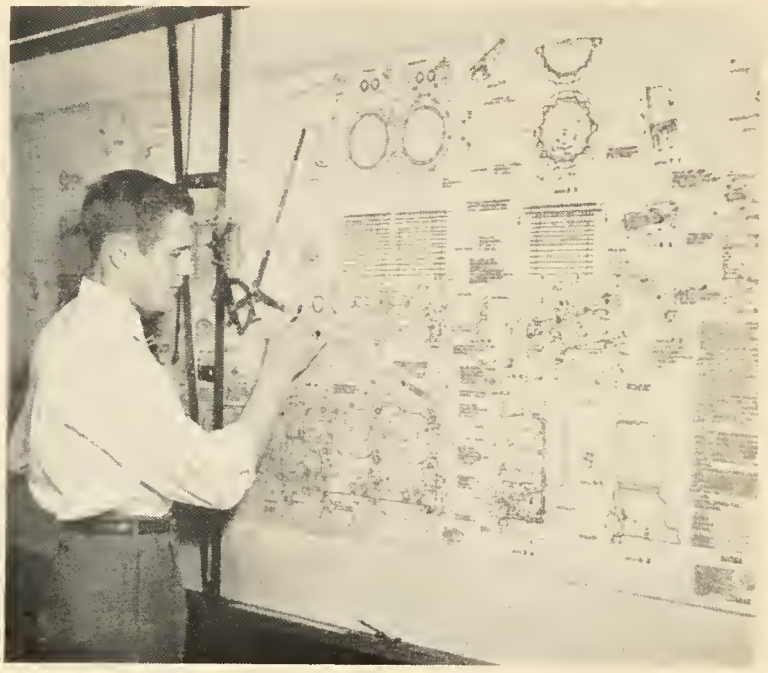
Outstanding opportunities are available to men trained in servicing office machinery. Men with a pleasant personality and with mechanical skills beyond those of the ordinary mechanic will find employment opportunities with the large manufacturers of office equipment, with appliance sales agencies, or in their own small businesses.

Men with various physical handicaps frequently find this field of work a good solution to their vocational problems. Physically handicapped students, however, should confer with authorized guidance centers, the State Bureau of Rehabilitation, or the school authorities before finally selecting the course.

The student is taught to diagnose troubles in the machine by inspecting, disassembling, and examining the moving parts or other mechanism. The proper method of adjusting, tightening, setting, and otherwise adjusting gears, guides, rollers, pinions, and other parts, using all hand tools, is covered thoroughly. Broken or defective parts are removed and repaired, or replaced with new ones. Worn machines are completely rebuilt to factory standards.

Course Units: Basic shop practice, appliance electricity, plating and refinishing, typewriter maintenance, copy-preparation, duplicating machine maintenance, accounting machine maintenance. 4 years.

Students learning to repair and service office machines



Technical Institute students secure jobs as journeymen

DESIGN AND DRAFTING

DRAFTING

General Drafting is a broad course which prepares for entrance into many drafting occupations in a variety of industrial and manufacturing establishments. Graduates of this course can qualify as senior draftsmen or junior designers. With experience and continued study, graduates may rise to very responsible positions. A high school education or the equivalent with an aptitude for mathematics and science are necessary for greatest success in this field. Advanced students major in specialized areas such as:

Lofting
Mechanical Drafting
Technical Illustration
Topographical Drafting

Course Units: Basic drafting, drafting technique, drafting standards and practice, related shop work as pattern making, machine shop, advanced drawing, related and theoretical work. 4 years.

TOOL DESIGN AND TECHNOLOGY

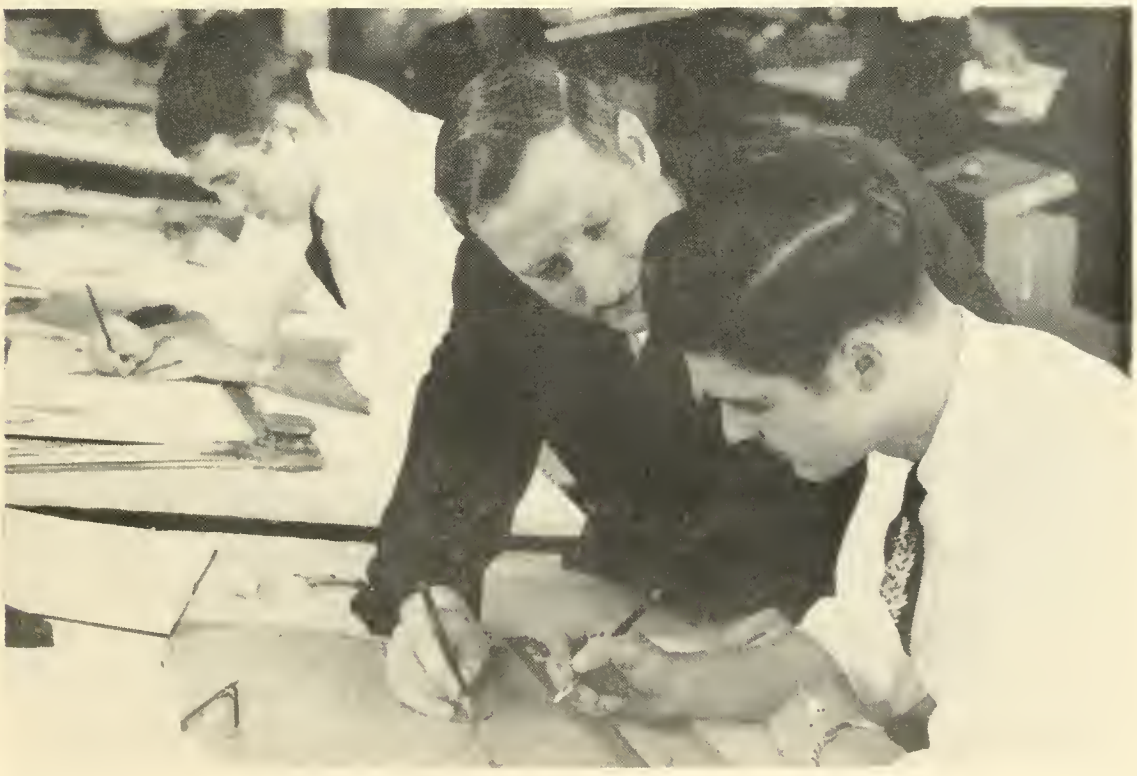
The tool designer is the middle man between the engineering department and the production job. He is a toolmaker who works on the drawing

board. His job is to design special tools and select machines that will produce parts with the necessary speed and accuracy. Since shop practice and toolmaking along with drafting are important phases of the tool design training, one half of the training is given in actual shop practice.

To be a good designer requires aptitude, ingenuity, and imagination comparable to that of the engineer. The tool designer might well be called the engineer of the production line. By being ingenious he will reduce, to a minimum, the number of operations necessary to complete a piece part. It is this combination of toolmaker, draftsman, and inventor, that makes the tool designer one of the key men of modern production and manufacturing.

The Tool Design and Technology course as given at the Technical Institute is approved by the American Society of Tool Engineers.

Course Units: Tool room practice, gage manufacture, heat treating, tool and diemaking, welding fabrication, production practices, basic drafting, jig and fixture design, gage design, die design, design and use of cutting tools, drawing, related and theoretical work in a major field of interest. 4 years.



Individual instruction for all

ARCHITECTURAL DRAFTING

The architectural drafting course prepares for the position of draftsman in architectural establishments. It includes training in the established drafting practices, and in art, design, estimating, and construction necessary to permit the graduate to deal with all the common problems of the architect's assistant.

Course Units: Basic drafting, sketches and studies, building construction, practical drafting practice, structural details and design, plumbing, heating, and electrical systems, specifications, supervision of construction, problem applications. 3 years.

Architectural drafting students working on design problems

COMMERCIAL ART

The course in Commercial Art prepares persons artistically inclined for professionl work in either commercial art or illustration. The work consists of drawing and painting in all media: pencil, charcoal, water-color, or oils. A broad training is given in basic design, composition, perspective, methods and professional practice as applicable to advertising art.

Course Units: Elementary drawing and painting, advanced drawing and painting, still life painting, basic design and composition, methods and materials, perspective, professional practices. 4 years.

Student completing a commercial sign

SIGN PAINTING

The instruction offered in sign painting gives the student a broad background which will enable him to make a start in his own business or to work for a commercial sign shop.

The student is taught to visualize and sketch the design for any type commercial sign, to complete the sign in different media, and then to properly locate and install it.

Course Units: Show card, bulletin, truck, and window lettering, silk screen process, neon pattern layout and installation. 2 years.

STRUCTURAL DESIGN

In this course the student learns to design and detail wood, steel, and concrete structures and forms to carry heavy loads safely. Bridges and skeleton frames of industrial buildings are examples. The graduate will be qualified to work in an engineer's or architect's office on this type of work.

Course Units: Use of instruments, descriptive geometry, basic architectural drafting, building codes, estimating, specifications, practical problems, working drawings, building construction practice, structure design, structure detail, building materials. 2 years.

ELECTRICITY

ELECTRICAL CONSTRUCTION

The course in Electrical Construction is a broad, basic, and a well balanced course in practical electricity. The student's time is divided between electrical theory, practical laboratory instruction, and job experience.

The student is taught to lay out, assemble, install and test electrical fixtures, apparatus, control equipment, light and power systems of buildings or other construction projects.

Projects are planned and installed from blueprints and specifications. Complete armature and motor repair are taught. Such phases of electrical work as magnetic switch coils, holding coils, and transformer ratios are thoroughly covered in the program.

After having completed this program of study, the student should have a good foundation to qualify eventually as an all-round electrician. He should also have a good knowledge of the industrial applications of basic electrical concepts so that he might qualify as a technologist in the electrical field.

Course Units: Signal, light, power, and telephone wiring; appliance repairs; motor and armature rewinding and repair; D. C. and A. C. Electric theory; installation of conduits; electronic industrial controls; motor and controller connection; trouble shooting; laboratory testing. 2½ years.

Students installing fluorescent lighting

Electrical theory is important

ELECTRICAL TECHNOLOGY

Electronic methods and electrical technology have progressed rapidly at a pace which few other branches of applied science can equal. Today, such activities as sound motion pictures, and world-wide communication systems, are completely dependent upon electronic circuits. Industry too has adapted electronic equipment to its own needs.

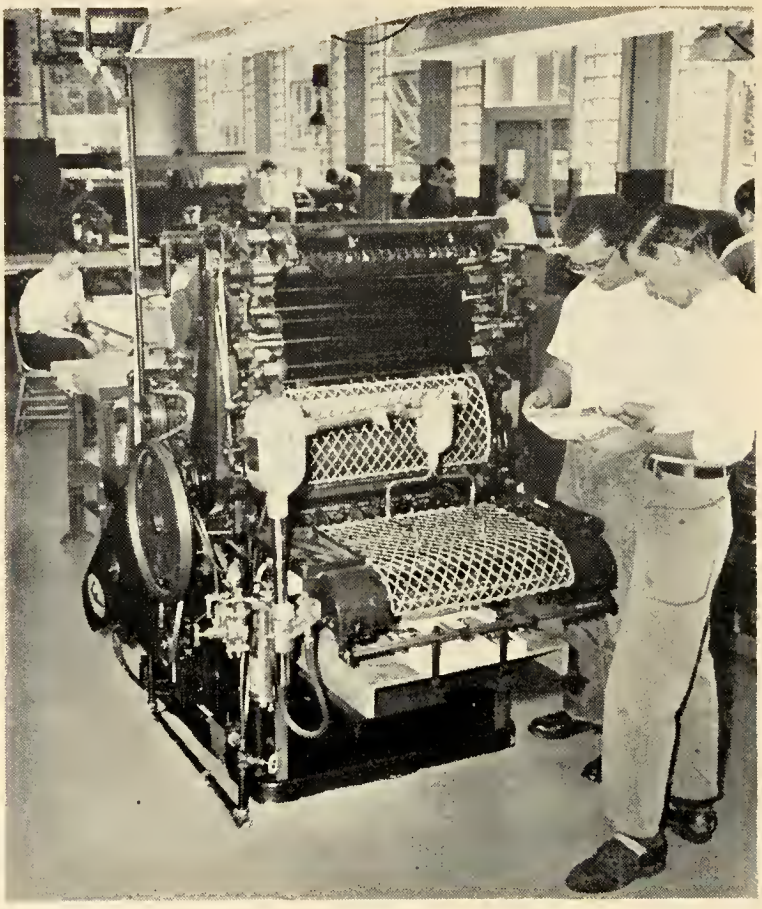
The future possibilities in the electrical field are unlimited. Men who operate electronic systems or who care for the technical phases of the power and appliance fields must have much more background than can be acquired through self-study and short training courses.

The course is open to qualified applicants who wish to prepare for employment as skilled technicians. Graduates of this course are qualified to enter such fields as electric equipment sales or service, industrial test departments, industrial and electronic maintenance, estimating and planning of light and power installation.

The course contains adequate shop and laboratory work to impart skills but emphasis is on a background of theory and circuit construction.

Course Units: Related mathematics, related drafting, blue print reading, direct-current theory, industrial electronics theory, electrical laboratory tests and experiments, circuit construction, motor winding, direct current motors and controllers, alternating current motors and controllers, equipment design and development, load and efficiency tests on plant equipment, illumination design. 2 years.

GRAPHIC ARTS



Modern printing by offset lithography

OFFSET LITHOGRAPHY

The purpose of this course is to provide a broad and thorough knowledge of the Offset Lithographic method of reproduction. Practical instruction in each of the major phases of the industry will be given, together with related trade and technical instruction covering basic principles and processes, materials, tools and machines.

The course, covering copy preparation, layout, camera, platemaking, and press operation, has been arranged to give the student a well rounded education in black and white lithography, along with a knowledge of color work.

Applicants should have graduated from High School or possess mechanical aptitude within the normal range or better.

Graduates should be able to hold a position in a commericial or job shop upon completion of the course.

Course Units: English, printing arithmetic, copy preparation, hand composition, proofreading, bindery, camera work, stripping, platemaking, press operation. 2 years.

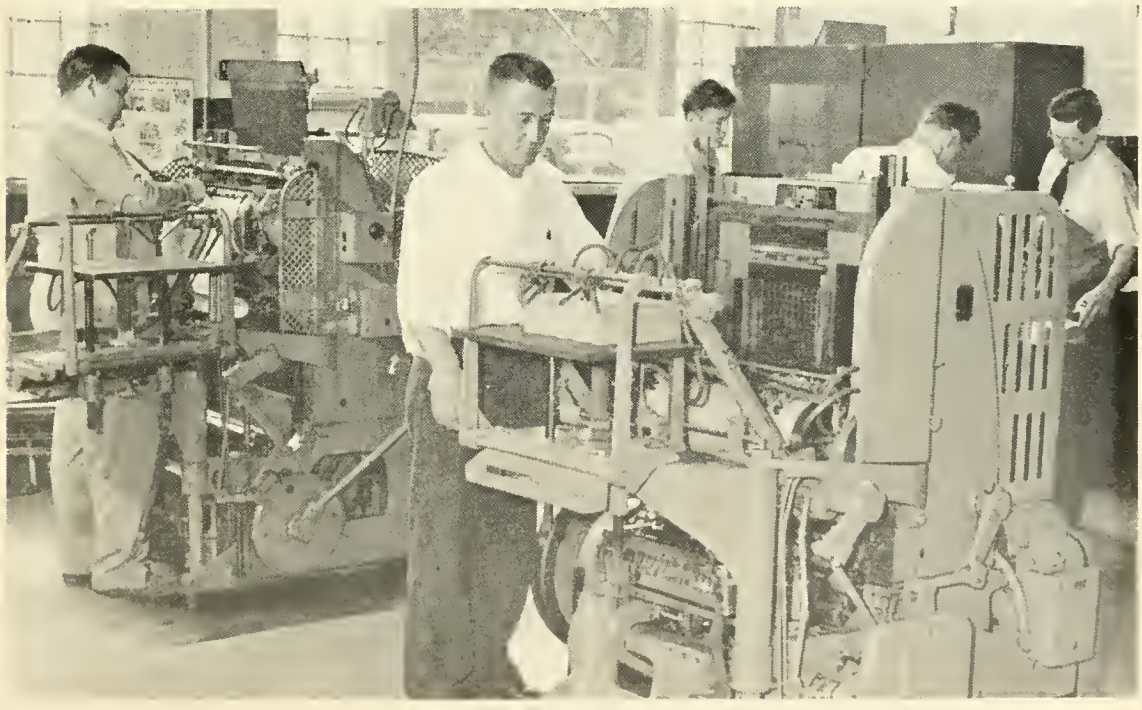
LETTERPRESS PRINTING

Printing is both a great manufacturing industry and one of the arts. Persons who are mechanically inclined and who possess creative imagination find it a satisfying occupation. It is so closely interwoven with our professional, business, and personal life that it is one of the most stable occupations in which to earn a livelihood.

This is a course which requires much originality and patience. The student should have a sincere desire to learn this trade. The applicant should have a high school education or the equivalent and possess good mechanical aptitude. The printing course at the Technical Institute is a broad course which gives the student a thorough knowledge and basic skills in the letterpress printing field.

The course includes training which can lead to employment in the printing industry as hand compositor, plate maker, platen press operator, automatic press operator, or as a general all-round printer in a small plant. Students also receive fundamental training in typography, design, layout, copy preparation, and estimating.

Course Units: Hand composition, proofreading, bindery, English, Mathematics, platen press, Miehle vertical press. 2 years.



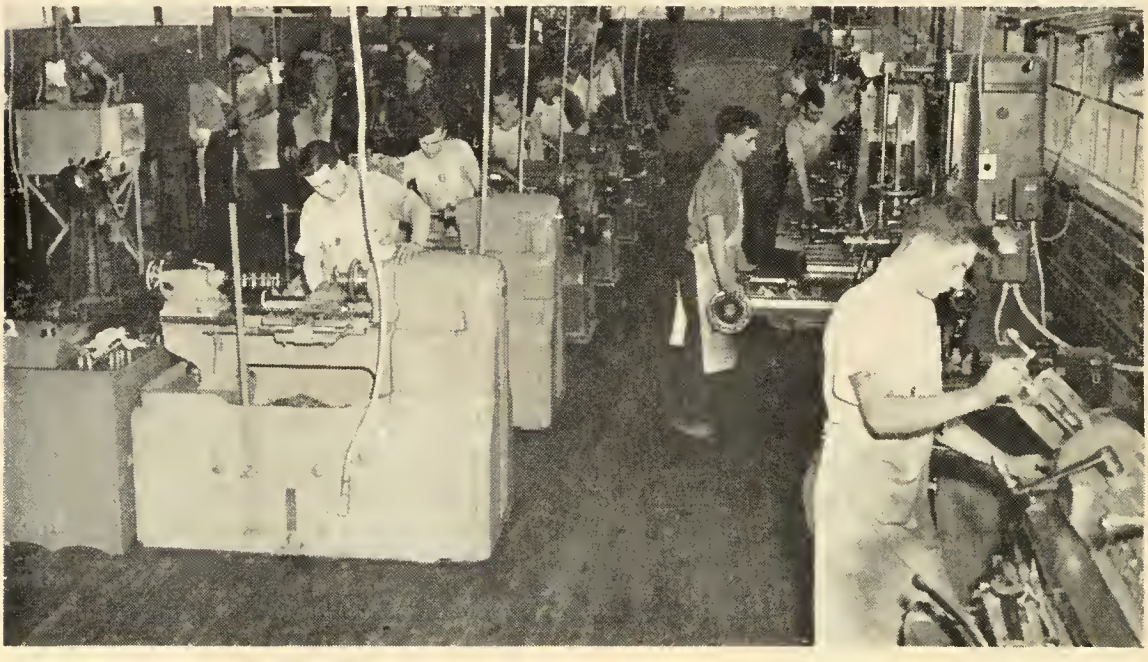
Printing on up-to-date automatic cylinder presses

MACHINE SHOP WORK

EMPLOYMENT OPPORTUNITIES IN THE METALWORKING TRADES

At the Technical Institute you will receive your training in one of the best equipped school machine shops in the country. Upon completing the course, you will be capable of holding a skilled job in industry without the necessity of serving an apprenticeship.

Training in machine shop practice is fundamental to many other jobs. Students find openings as machinists, millwrights, job setters, maintenance mechanics, tool and die makers, gage makers, etc. American industry has become mechanized to such a degree that there will continue to be many job openings in this field.

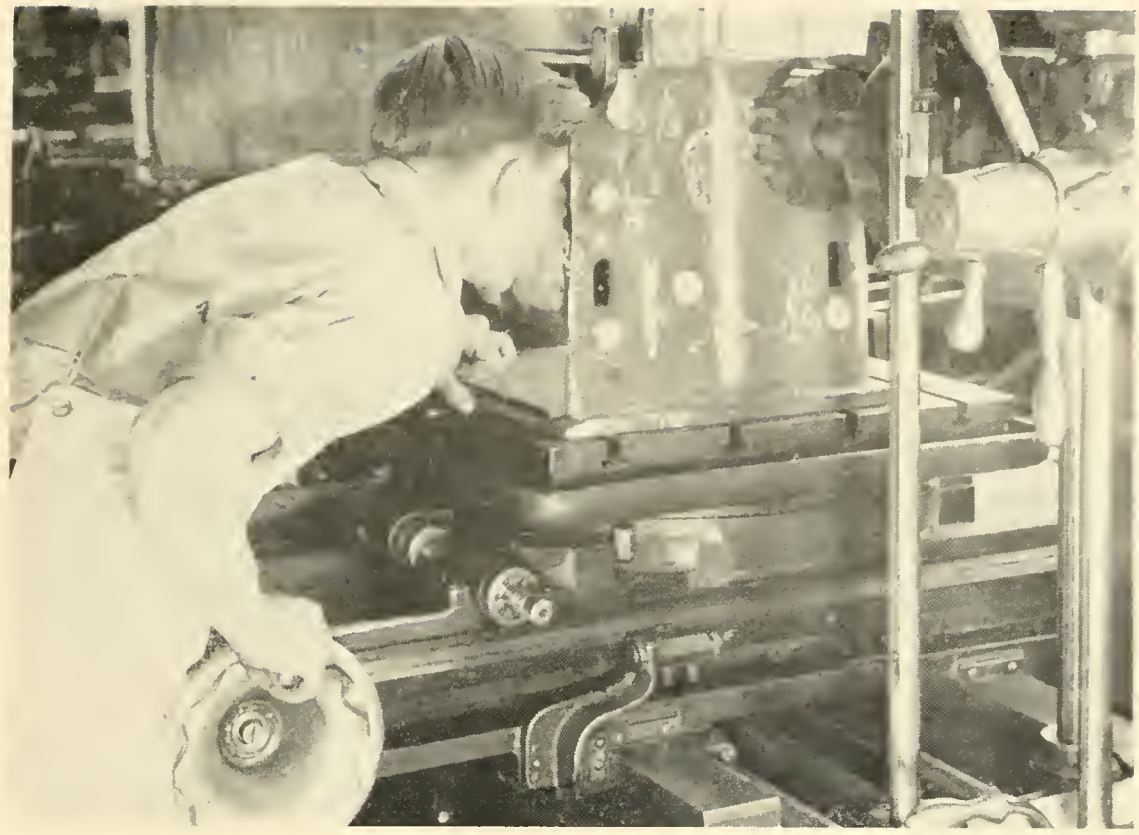


Students learn their craft on modern industrial equipment

GENERAL MACHINIST

This is "all-round machinist" training, and it is second only to toolmaking in the degree of expertness required. The training includes the operation and set-up of all common machine tools, bench work, elementary tool and fixture work, machine repair and production operations. The student, who completes this course, can enter industry with the objective of becoming a general machinist, millwright, maintenance machinist, or job setter.

Course Units: Bench work, drill press, engine lathe, shaper and planer, milling machine, boring machine, grinding machine, heat treating, turret lathe, automatic screw machine, production control and inspection. 4 years.



Precision boring in the machine shop tool room on a large horizontal boring machine

TOOLMAKING AND DIEMAKING

The toolmaker and diemaker are the most highly skilled men in the machine shop.

The toolmaker specializes in the construction, repair, and calibration of machine shop tools, jigs, fixtures, and instruments.

The diemaker specializes in the construction and repair of dies for forging, punching, stamping or other metal-forming work.

Both of these craftsmen operate modern machine tools and perform other highly skilled work such as laying out, fitting, and assembling parts.

The course consists of training in the use of all modern machine tools, heat treating, materials, and the practice of tool and die manufacturing. The first part of the course is the same for both trades, but, in the advanced sections, the student elects to specialize in either toolmaking or diemaking.

Course Units: Bench work, drill press, engine lathe, shaper and planer, milling machines, boring machines, grinding machines, heat treating, turret lathes and automatic screw machines, production control and inspection, metal forming. 4 years.

RADIO AND ELECTRONICS

RADIO BROADCASTING

This course is designed to train the student to qualify for any of the following positions: radio announcer, master of ceremonies, news broadcaster, radio script writer, writer of radio advertisements, program director, station manager, or advertising manager.

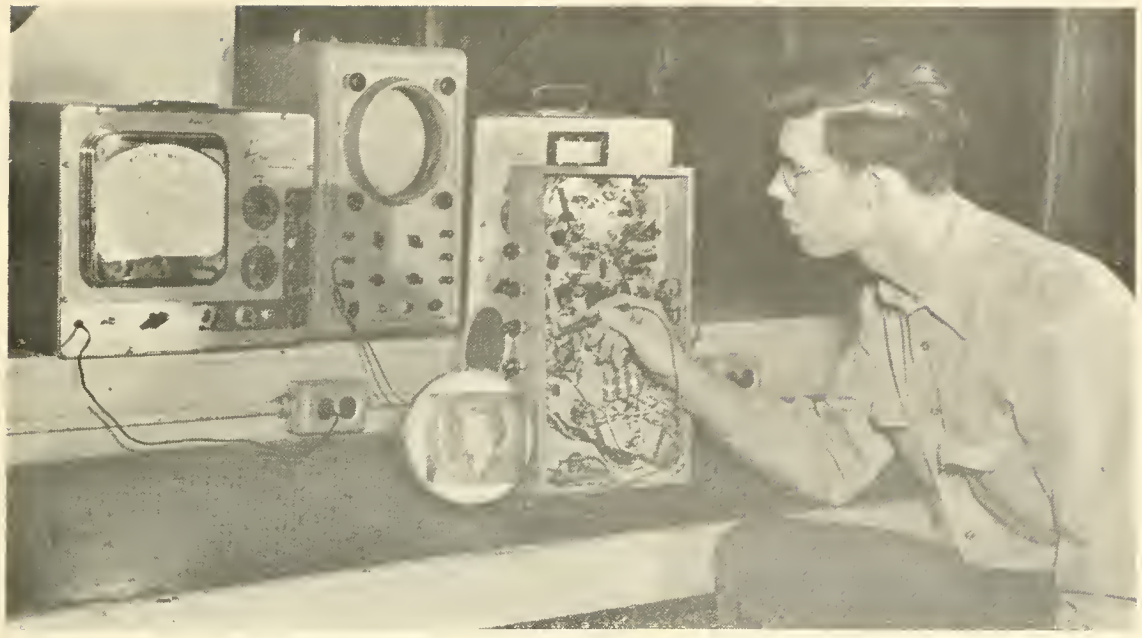
Candidates for admission to this course must be high school graduates, or the equivalent.

Course Units: Basic radio laboratory, diction, microphone techniques, radio play production, script preparation, writing advertising copy, broadcasting station management, radio engineering techniques, maintenance of studio equipment, English and speech laboratory, related and background classes. 3 years.

RADIO SERVICING

Radio Servicing is a specialized course for students who wish to enter the radio field as servicemen or to conduct their own businesses. Enough theory is taught to give the student a practical understanding of how radio receivers work, but emphasis is placed on trouble shooting in receiver circuits. Considerable time is devoted to actual practice on servicing home radio re-

Recording a broadcast on a tape recorder



Checking a television receiver

ceivers, record changers, and similar equipment under the direction of radio service instructors who have spent many years in the industry.

Course Units: Elementary radio physics, advanced radio physics, basic radio laboratory practice, radio receiver trouble shooting, antenna installations for amplitude and frequency modulated receivers, radio service and sales business management. 1½ years.

RADIO COMMUNICATIONS AND ELECTRONICS

This program of study is designed for those who wish to enter airline, marine or landline stations as communications operators, or who wish to become broadcast station engineers. The course offers a thorough theoretical and practical training, with emphasis placed on the modern radio developments of ultra high frequency techniques, and in the low frequency field or the application of electronics principles to industrial controls.

Employment possibilities in the communications and industrial electronic fields are very good. Hundreds of new radio stations are being erected and applications for new station licenses will increase as frequency modulation and television apparatus becomes available.

Candidates for entry to this course must be high school graduates.

Course Units: Basic radio physics, advanced radio physics, receiver theory, transmitter theory, basic electronics laboratory practice, advanced electronics laboratory practice, international code, code-typing, teletyping, international radio law, communication procedure, and "on the air" practice in the school's radio station. 4 years.

REFRIGERATION AND AIR CONDITIONING

Checking air-flow in air conditioning class

REFRIGERATION AND AIR CONDITIONING SERVICE

This is a combination course intended to prepare the student for employment as a serviceman in both these related fields.

In refrigeration a detailed study is made of both domestic and commercial refrigeration by mechanical means. Shop or laboratory work consists of practice in the servicing of compressors, condensers, motors, switches controls and accessories.

In air conditioning both summer and winter cycles are studied. True air conditioning includes a study of cooling, dehumidifying, cleaning, circulating, and heating.

The student is trained to operate, install, maintain, or repair any type of refrigerating or air conditioning equipment. He is also prepared to test or inspect such equipment.

The course covers the theory of refrigeration and air conditioning, the characteristics of the various gas refrigerants, insulation, the servicing of well known makes of equipment, valves and controls, the installation of both domestic and commercial units.

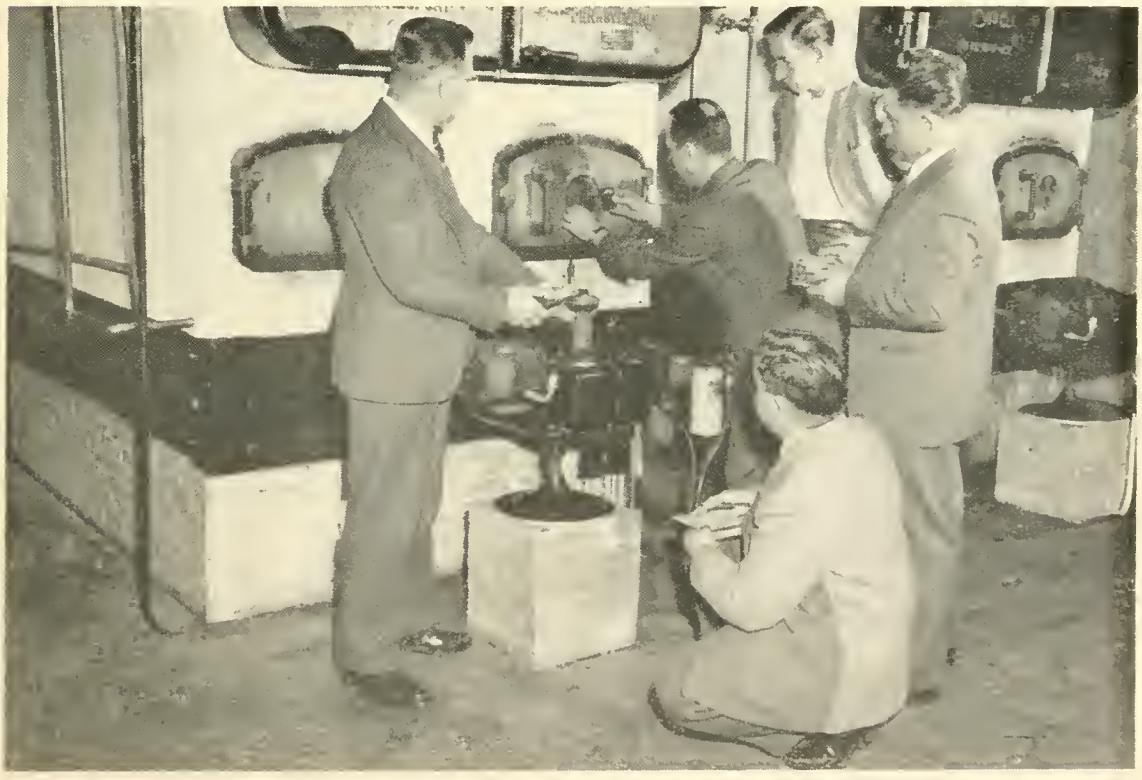
Course Units: Bench and machine work, domestic refrigeration, commercial refrigeration, heating, ventilation, air conditioning, sheet metal, welding, electricity, physics, drafting. 4 years.

HEATING, VENTILATION, AND AIR CONDITIONING TECHNICIAN

This course is intended for the student who wishes to enter the managerial and designing phase of the heating, ventilating and air conditioning industry. Through it students are trained for key positions in this large and growing field. Upon graduation the student has the basic training to fit him for positions as a draftsman, designer, estimator, contractor, serviceman, equipment salesman, maintenance technician, etc.

The first year of this course is similar to the course of study given in Refrigeration and Air Conditioning Service. The last year is spent in studying the advanced methods and theory of heating and air conditioning. The course contains some shop and laboratory work, but the emphasis is on the designing and preparation of plans, testing, research, and supervising the installation of such systems.

Course Units: Refrigeration, general heating theory, gravity heating theory, forced warm air heating theory, hot water heating theory, steam heating theory, air conditioning theory, oil burner theory, sheet metal, practice drafting and heating layout, ventilation and exhaust system theory, pipe fitting, salesmanship, and business English. 2 years.



Testing combustion in a large oil-fired boiler

LABORATORY GLASS WORKING

Laboratory Glass Working involves the heating, rotating, bending, shaping and blowing of glass tubing to make up the glass apparatus as used in laboratories, hospitals, and industry.

The traditional concept of a glass blower is unknowingly confused with laboratory glass working. Actually the laboratory glass worker does not use a blow pipe nor make up his ware from a gather of molten glass, but works only with glass tubing.

The course includes instruction in operating the machinery and other equipment necessary for cutting, grinding and annealing glass. When the technique of handling glass by hand is mastered, the student receives instruction in working with large diameter tubing on a modern glassworking lathe, and in making and assembling simple and complex pieces of glass apparatus.

Laboratory glass workers are in demand by scientific supply companies, research laboratories, radio and television plants, hospitals and colleges.

Course Units: Glass and its working characteristics, elementary and advanced glassworking, glass to metal seals, machinery and equipment, technique of complicated apparatus. 2 years.

Laboratory glass workers are highly skilled

NEON SIGN FABRICATION

The art of bending and pumping tubing for the advertising trade is now an important and profitable business. As a student, you first learn the properties of glass and the characteristics of the materials you use. Then you are taught to bend right angles, "U" and circular bends, script, block letters, and pumping operations. All bending and pumping operations are taught using 12mm and 15mm tubing.

The course also includes apparatus blowing and repairing of pyrex diffusion pumps, glass manometers, manifold set-up and maintenance, and the fabrication of pressure gages. Modern lighting problems are constantly studied, and cold cathode tubes are made and field tested by the students.

When this course is taken in conjunction with sign painting, the student then possesses a rounded experience which will permit him to do any type of sign work.

Course Units: Properties of glass, angle bends, U bends, circular bends, simple apparatus blowing, bombarding and pumping, related subjects. 1 year.

Making a script-type neon sign

PATTERNMAKING

PATTERNMAKING

Patternmaking is the technique of preparing, shaping, or building wood and other adaptable materials into models. These models are used in the foundry to make molds into which the molten metal is poured to produce castings. The work is chiefly in the woodworking field with certain types of metal work and foundry practiced as associated activities. The course consists of units of work arranged in flexible, progressive stages and selected according to the principles of molding involved and to the difficulties encountered in the construction.

Patternmaking offers excellent employment opportunities for students who have creative abilities and the desire to become highly skilled craftsmen. Graduates of this course should be able to qualify for the minimum journeyman classification in various pattern shops. Graduates of the Patternmaking Course are often accepted by employers as having had the equivalent of an apprenticeship. There is a large demand for well-trained craftsmen in this field.

Course Units: Bench work, lathe work, core prints, pattern construction, core-box construction, woodworking machines, pattern requisites, blue print reading, master patterns, foundry practice. 4 years.

Core box construction in patternmaking class

WELDING

Electric welding structural steel

ELECTRIC WELDING

These who complete this course are qualified as general electric-arc welders. Training is given in the theory and practice of all phases of electrical welding. Practical experience is given throughout the course.

Jobs in electric welding are found in industrial establishments such as the following: boiler shops, heavy equipment manufacturers, structural steel fabrication, railroads, steel mills, and welding shops.

Course Units: Electric position welding, pipe welding, cast iron welding, railroad and structural steel welding, maintenance of equipment, heat treating and testing, forge practice, blueprint reading. 8 months.

ACETYLENE WELDING

This course is designed for the man who wishes to become a general acetylene welder. Welding training is given on all thicknesses of ferrous and non-ferrous metals, with all common tools and appliances.

Considerable oxy-acetylene welding is usually done in industrial plants such as sheet metal, light steel fabricating, iron foundries, garages, pipe shops, and job welding shops.

Course Units: Welding in all positions, cutting and burning, pipe welding, repair work on machinery and automotive parts, layout and fabrication, testing of welds. 1 year.

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